

OpenAir™

## Air damper actuators for railway vehicles

GD..161.1E/RW



### Electronic motor driven actuators for modulating control

- Nominal torque 5 Nm
- Runtime 30 s / 90 s
- Rotary angle 0...90°
- Connection cables railway specific
- Degree of protection IP54
- Printed circuit board, coated

## Features

Air damper actuators in difficult operational conditions; they meet the main requirements for:

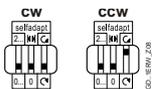
- EN 50155 (Railway applications - Electronic equipment used on rolling stock)
- EN 45545 (Railway applications - Fire protection on railway vehicles)
- EN 61373 (Railway applications - Rolling stock equipment - Shock and vibration tests).

## Use

The damper actuators are expressly suitable for air conditioning units and air distribution systems for railway vehicles.

- For damper areas up to 0.8 m<sup>2</sup>
- Suitable for use with modulating controllers (DC 0/2...10 V).

## Functions

Function	Description
Control type	Modulating control (DC 0/2...10 V)
Rotary direction	Clockwise / counter-clockwise, selectable with switch. With no power applied, the actuator remains in the respective position. <div style="text-align: right;">  </div>
Position indication: Mechanical	Rotary angle position indication by using a position indicator.
Position indication: Electrical	Position indicator: Output voltage $U = DC\ 0/2...10\ V$ is generated proportional to the rotary angle. $U$ depends on the rotary direction of the DIL switch setting.
Manual adjustment	The actuator can be manually adjusted by pressing the gear train disengagement button.
Rotary angle limitation	The rotary angle of the shaft adapter can be limited mechanically with a set screw.

## Technical design

### Housing

The housing consists essentially of glass fibre reinforced plastic:

- flame retardant
- non brominated
- non chlorinated.

### Actuator motor / Gears

- Brushless, robust DC motors ensure reliable operation regardless of load. The damper actuators do not require an end position switch, are overload proof, and remain in place up on reaching the end stop.
- The gears are maintenance free and low noise.

## Type summary

Type	Stock no.	Operating voltage	Runtime [s]	Nominal torque [Nm]	Auxiliary switch	Rotary direction switch
GDD161.1E/RW	S55499-D211	DC 24 V –	30	5	–	yes
GDA161.1E/RW	S55499-D215		90	5	–	

## Accessories

Type	Description	Use
ASK78.6	Centering insert, square profile 8 mm	To center a shaft with square profile 8 x 8 mm in the coupling bushing of the actuator.
ASK78.7	Centering insert, square profile 10 mm	To center a shaft with square profile 10 x 10 mm in the coupling bushing of the actuator.
ASK78.9	Centering insert, round 10 mm	To center a shaft with round dia. 10 mm in the coupling bushing of the actuator.
ASK78.10	Centering insert, round 12 mm	To center a shaft with dia. 12 mm in the coupling bushing of the actuator.

## Product documentation

Topic	Title	Document ID
Data sheet	Air damper actuators for railway vehicles	A6V10636293_en--_a
Mounting instructions	GD..1E/RW, GD..1G/RW, GL..1E/RW	A6V10636275_----_a

Related documents such as environmental declarations, CE declarations, etc., can be downloaded at the following Internet address:

<http://siemens.com/bt/download>

## Notes

### Safety



#### ⚠ Caution

##### National safety regulations

Failure to comply with national safety regulations may result in personal injury and property damage.

- Observe national provisions and comply with the appropriate safety regulations.
- Use only properly trained technicians for mounting, commissioning, and servicing.

## Installation

	<b>⚠ WARNING</b>
	<p><b>No internal line protection for supply lines to external consumers</b></p> <p>Risk of fire and injury due to short-circuits</p> <ul style="list-style-type: none"> <li>Adapt the line diameters as per local regulations to the rated value of the installed fuse.</li> </ul>

## Maintenance

The actuators GD..161.1E/RW are maintenance-free.

## Disposal

	<p>The device is considered electrical and electronic equipment for disposal in terms of the applicable European Directive and may not be disposed of as domestic garbage.</p> <ul style="list-style-type: none"> <li>Dispose of the device through channels provided for this purpose.</li> <li>Comply with all local and currently applicable laws and regulations..</li> </ul>
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## Technical data

<b>Power supply</b>		<b>GDD161.1E/RW</b>	<b>GDA161.1E/RW</b>
Operating voltage		DC 24...45 V = +25 % / -30 % (16.8...56.3 V ⇒)	
Power consumption	Running	1.5 W	1.3 W
	Holding	0.5 W	0.5 W
<b>Functional data</b>		<b>GDD161.1E/RW</b>	<b>GDA161.1E/RW</b>
Nominal torque		5 Nm	
Maximum torque (blocked)		7 Nm	
Nominal rotary angle		90°	
Max. rotary angle		95° ± 2°	
Runtime for 90° rotary angle		30 s	90 s
Actuator sound power level		32 dB(A)	30 dB(A)
<b>Mechanical life</b>			
Full cycles		100'000	
Partial cycles		5'000'000	
<b>Wiring connections (specific for railway vehicles)</b>			
Cable length		0.9 m	
Cross-section		0.75 mm <sup>2</sup>	
<b>Degree of protection</b>			
Insulation class		III as per EN 60730	
Housing protection		IP 54 as per EN 60529	

Environmental conditions	
Temperature	-40...+70 °C
Overtemperature (max.10 min / 15 °C)	...+85 °C
Humidity	<95 % r.F.
Condensation	permitted

Standards, directives and approvals	
Product standard	EN60730-2-14 Part 2-14 / Particular requirements for electric actuators
Railway applications	EN 50155 Railway applications - Electronic equipment used on rolling stock  EN 61373 Shock and vibration  EN 45545-2 Fire prevention in railway vehicles
Electromagnetic compatibility (Application area)	For railway applications Residential, commercial, light-industrial and industrial environments
EU Conformity (CE) GDD161.1E/RW GDA161.1E/RW	A5W00026942 <sup>1)</sup> A5W00026943 <sup>1)</sup>
UK Conformity (UKCA) GDD161.1E/RW GDA161.1E/RW	A5W00219359A <sup>1)</sup> A5W00244318A <sup>1)</sup>
RCM Conformity GDD161.1E/RW GDA161.1E/RW	A5W00026946 <sup>1)</sup> A5W00026947 <sup>1)</sup>
EAC Conformity	Eurasian conformity

Environmental compatibility
The product environmental declaration A5W00026066 <sup>1)</sup> contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

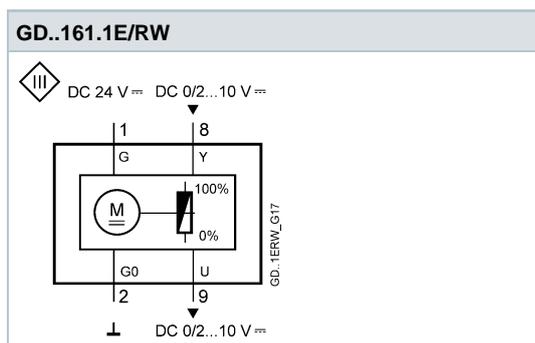
Dimensions		
Actuator W x H x D		see „Dimensions“, p. 7
Suitable drive shafts	Round shaft	8...16 mm
	Round shaft (with centering element)	8...10 mm
	Square shaft	8...12.8 mm
	Hexagon	8...14 mm 15 mm <sup>2)</sup>
	Min. drive shaft length	30 mm
	Max. shaft hardness	<300 HV

Weight	
Without packaging	465 g

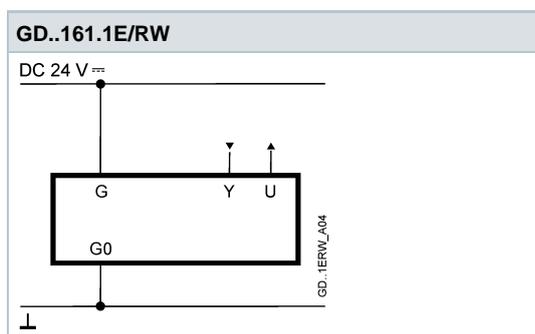
<sup>1)</sup> The documents can be downloaded from <http://siemens.com/bt/download>.

<sup>2)</sup> This value only works with the form fit function

Internal Diagram



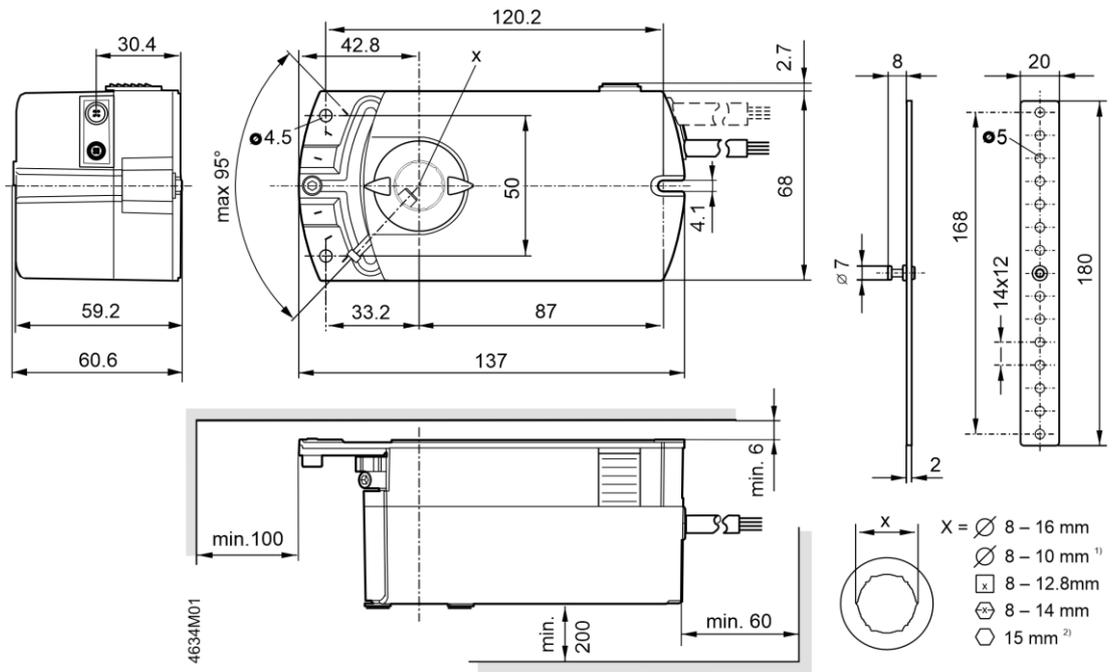
Connection diagram



Cable labeling

Connection	Code	No	Color	Abbreviation	Meaning
DC 24 V =	G	1	red	RD	System potential DC 24 V =
Actuators	G0	2	black	BK	System neutral
	Y	8	grey	GY	Signal in
	U	9	pink	PK	Signal out

## Dimensions



<sup>1)</sup> With centering element

<sup>2)</sup> This value only works with the form fit function

Dimensions in mm

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